

## *Curriculum vitae*

### **Duo Xu, Ph.D.**

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### **CURRENT POSITION**

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**Post-doctoral associate**, June 2018 - now

Institute of Computational Biomedicine, Weill Cornell Medical College, New York, NY

### **EDUCATION**

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**Ph.D. in Biology** (Major in Biological Sciences), May 2015 - June 2018  
the State University of New York, University at Buffalo, Buffalo, NY

**M.S. in Biology** (Major in Biological Sciences), Aug 2013 – May 2015  
the State University of New York, University at Buffalo, Buffalo, NY

**B.S. in Biology** (Major in Biological Sciences), Sep 2009 – Jun 2013  
Fudan University, Shanghai, China

### **PUBLICATIONS**

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#### University at Buffalo

**Xu D**, Pavlidis P, Flanagan C, Blekhman R, Ruhl S, Gokcumen O.\* Archaic hominin introgression in Africa contributes to functional salivary MUC7 genetic variation. *Molecular Biology and Evolution*. 10.1093. [**First author**]

-- Featured in *Sciencemag.org*, *Futurity*, among others. *Altmetric Score*: 334 (99<sup>th</sup> percentile).

**Xu D**, Pavlidis P, Thamadilok S, Redwood E, Fox S, Blekhman R, Ruhl S, Gokcumen O. Recent evolution of the salivary mucin MUC7. *Scientific Reports*. 2016 Aug 25;6:31791. [**First author**]

-- Featured in *Futurity*, *Popular Science*, *Technology.org*, among others. *Altmetric Score*: 139 (98<sup>th</sup> percentile).

**Xu D**, Jaber Y, Pavlidis P, Gokcumen O. **VCFtoTree**: A user-friendly tool to construct locus-specific alignments and phylogenies from thousands of anthropologically relevant genome sequences. *BMC Bioinformatics*. 18:426. [**First author**]

Eaaswarkhanth M\*, **Xu D\***, Flanagan C, Rzhetskaya M, Hayes G, Blekhman R, Jablonski N, Gokcumen O. Atopic Dermatitis Susceptibility Variants In Filaggrin Hitchhike Hornerin Selective Sweep. *Genome Biology and Evolution*. 8, 3240. [**\*Co-first author**]

Pajic P, Lin YL, **Xu D**, Gokcumen O. The psoriasis-associated deletion of late cornified envelope genes LCE3B and LCE3C has been maintained under balancing selection since Human Denisovan divergence. *BMC Evol Biol*. 2016 Dec 5;16(1):265. [**Co-author**]

Resendez S.D., Bradley J.R., **Xu D.**, Gokcumen O. (2018) Structural Variants in Ancient Genomes. In *Population Genomics*. Springer, Cham [**Co-author, part of the Population Genomics book series**]

Earlier (undergraduate work at Fudan University)

Zeng L, Yin Y, You C, Pan Q, **Xu D**, Jin T, Zhang B, Ma H. Evolution and protein interactions of AP2 proteins in Brassicaceae: Evidence linking development and environmental responses. *J Integr Plant Biol*. 2016 Jun;58(6):549-63. [**Co-author**]

## **SKILLS & RESEARCH EXPERIENCE**

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### **Proficient in Python, Unix, R programming**

- Developed a Python/Unix based bioinformatic pipeline from scratch to construct haplotype structure for thousands of individuals from 1000 Genomes.
- Compiled it into a macOS app, **VCFtoTree**, with user-friendly interface that can be used by audiences without knowing programming. The manuscript for **VCFtoTree** is published and it has already been successfully applied to multiple projects in our lab (Xu et al. 2016; Eaaswarkhanth & Xu et al. 2016; Pajic et al. 2016).
- Simulated the evolution of copy number variation in both Python and R to reveal the recurrent evolution of *MUC7* tandem repeats. (Xu et al. 2016)
- Analyzed RNA sequencing data for gene differential expression in human salivary glands.
- Built models to predict the function of enhancers in human genomes.

### **Proficient in bioinformatics tools and handling big genomics datasets**

- Proficient in SAMTools, BCFtools, bedtools, VCFtools, Plink, GATK, BWA, Kallisto, DESeq etc.
- Familiar with population genetics simulation tool MSMS.
- Worked with a combination of PacBio and Illumina data to study the structural variants in *C. albicans*.

### **Familiarity with molecular genetic experiments**

- Performed PCR to genotype copy number variation for *MUC7* tandem repeats, and extracted the DNA for sequencing.
- Performed western blotting to measure the size of *MUC7* protein for different genotypes to tell the effect by different copy numbers.

## CONFERENCE

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**Duo Xu**, Pavlos Pavlidis, Recep Ozgur Taskent, Nikos Alachiotis, Colin Flanagan, Ran Blekhman, Stefan Ruhl, Omer Gokcumen. (2017) Archaic hominin introgression in Africa contributes to functional salivary *MUC7* genetic variation.

- *The 86th Annual Meeting of the American Association of Physical Anthropologists (2017) Podium presentation.*

**Duo Xu**, Pavlos Pavlidis, Colin Flanagan, Supaporn Thamadilok, Emilie Redwood, Sara Fox, Ran Blekhman, Stefan Ruhl, Omer Gokcumen. (2016) Evolution of *MUC7*: Insights into human salivary adaptation.

- *The 85th Annual Meeting of the American Association of Physical Anthropologists (2016) Poster.*

**Duo Xu**, Pavlos Pavlidis, Colin Flanagan, Supaporn Thamadilok, Emilie Redwood, Sara Fox, Ran Blekhman, Stefan Ruhl, Omer Gokcumen. The recent evolution of the salivary mucin *MUC7* in primates.

- *Northeastern Evolutionary Primatologists 2nd Conference (2016) Poster*

## FUNDS AND AWARDS

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### Graduate

2017 Dissertation Fellowship (\$6,000) from College of Arts and Sciences, University at Buffalo

2016 GSA Conference Travel Fund for the 2016 AAPA meeting at Atlanta

### Undergraduate

2013 Second-class People's Scholarship (Top 15%)

2012 Silver Medal and the Special Prize "Safety Commendation" in Asian Regional Jamboree of iGEM

2012 School's Professional Scholarship

2010 School's Professional Scholarship

2010 Third-class People's Scholarship (Top 30%)